

Application No. 10/827,046

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)

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4. (Currently Amended) An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel, the ink stick comprising:

an ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction;

wherein the ink stick insertion perimeter includes at least three nonlinear key elements;

wherein a first of the nonlinear key elements is along a first portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction;

wherein a second of the nonlinear key elements is along a portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction;

wherein the first and second nonlinear key elements do not intersect one another; and

wherein the first and second nonlinear key elements each have has a shape substantially identical to the shape of a portion of the insertion opening.

5. (Original) The ink stick of claim 4, wherein the ink stick insertion perimeter includes at least one linear perimeter segment between the first nonlinear key element and the second nonlinear key element.

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6. (Original) The ink stick of claim 4, wherein each of the nonlinear key elements has a shape substantially identical to the shape of a portion of the insertion opening of the solid ink feed system.

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7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

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15. (Currently Amended) An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel, the ink stick comprising:

an ink stick body adapted to be inserted in the insertion direction into the feed channel, the ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction;

wherein the ink stick insertion perimeter includes two substantially parallel lateral perimeter segments;

wherein the ink stick insertion perimeter includes at least one end perimeter segment;

wherein the end perimeter segment is oriented at an angle with respect to the lateral perimeter segments;

wherein the end perimeter segment forms a leading portion of the ink stick as the ink stick moves in the feed direction along the feed channel;

wherein the ink stick insertion perimeter includes at least three nonlinear key elements;

wherein a first of the nonlinear key elements is on a first one of the lateral perimeter segments of the ink stick insertion perimeter;

wherein a second of the nonlinear key elements is on a second one of the lateral perimeter segments of the ink stick insertion perimeter;

wherein a third of the nonlinear key elements is on the end perimeter segment of the ink stick insertion perimeter; and

wherein the third nonlinear key element has a shape substantially identical to the shape of a portion of the insertion opening.

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16. (Original) The ink stick of claim 15, wherein as the ink stick is inserted in the insertion direction, the end perimeter segment is at least partially transverse to the feed direction.

17. (Original) The ink stick of claim 15, wherein:
the lateral perimeter segments are substantially linear apart from the nonlinear key elements; and
the end perimeter segment is substantially linear apart from the nonlinear key element.

18. (Original) The ink stick of claim 15, wherein the first and third nonlinear key elements do not intersect one another.

19. (Original) The ink stick of claim 18, wherein the second and third nonlinear key elements do not intersect one another.

20. (Previously Presented) The ink stick of claim 15, wherein the shapes of the first, second, and third nonlinear key elements are substantially identical to shaped elements of the insertion opening.

21. (Original) The ink stick of claim 20, wherein the ink stick insertion perimeter shape substantially matches an insertion opening perimeter shape.

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22. (Currently Amended) A solid ink feed system for a printer, the feed system comprising:

a longitudinal feed channel having an insertion end, a melt end, and a feed direction from the insertion end toward the melt end;

an insertion key plate having a key plate opening through it to provide access in an insertion direction to the insertion end of the feed channel;

wherein the insertion direction is different from the feed direction;

wherein the key plate opening has an insertion opening perimeter;

wherein the insertion opening perimeter includes two lateral opening perimeter segments and a transverse opening perimeter segment;

wherein the transverse opening perimeter segment intersects at least one of the lateral opening perimeter segments at an angle other than 180°;

wherein the transverse opening perimeter segment is on a portion of the key plate opening toward the melt end of the longitudinal feed channel;

wherein the insertion opening perimeter includes a first nonlinear key element on a first one of the lateral perimeter segments of the ink stick insertion perimeter;

wherein the insertion opening perimeter includes a second of the nonlinear key elements on a second one of the lateral perimeter segments of the ink stick insertion perimeter; and

wherein the insertion opening perimeter includes a third nonlinear key element on the transverse perimeter segment of the ink stick insertion perimeter.

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23. (Original) The solid ink feed system of claim 22, wherein:
the lateral opening perimeter segments are substantially parallel
one another; and

the transverse opening perimeter segment is substantially
perpendicular to the lateral opening perimeter segments.

24. (Original) The solid ink feed system of claim 23, wherein:
the insertion opening perimeter includes a second transverse
perimeter segment;

the second transverse perimeter segment is substantially parallel
to the first transverse perimeter segment; and

the insertion opening perimeter includes a fourth nonlinear key
element on the second transverse perimeter segment.

25. (Original) The solid ink feed system of claim 22, wherein:
the lateral perimeter segments are substantially linear apart from
the nonlinear key elements; and

the transverse perimeter segment is substantially linear apart from
the nonlinear key element.

26. (Original) The solid ink feed system of claim 22, wherein the
first and third nonlinear key elements do not intersect one another.

27. (Original) The solid ink feed system of claim 26, wherein the
second and third nonlinear key elements do not intersect one another.

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28. (Original) The solid ink feed system of claim 22, additionally comprising an ink stick comprising:

an ink stick body having a perimeter shape with two lateral perimeter segments and a transverse perimeter segment;

first and second nonlinear key elements on the lateral perimeter segments correspond in shape and size to the first and second nonlinear key elements of the insertion opening perimeter; and

a third nonlinear key element on the transverse perimeter segment corresponds in shape and size to the third nonlinear key element of the insertion opening perimeter.

29. (Currently Amended) A method of inserting a solid ink stick into a feed channel of a solid ink printer, the method comprising:

providing an ink stick having an ink stick insertion perimeter;

aligning the ink stick insertion perimeter with an insertion opening of a key plate;

inserting the ink stick in an insertion direction through the insertion opening;

moving the ink stick in a feed direction in the feed channel, wherein the feed direction is different from the insertion direction;

wherein aligning the ink stick insertion perimeter with the insertion opening comprises aligning at least three nonlinear key element shapes of the insertion opening of the key plate; and

wherein at least one of the nonlinear key element shapes is oriented at least partially transverse to the feed direction; and

wherein moving the ink stick in a feed direction in the feed channel comprises moving the ink stick in the feed direction past the nonlinear key element oriented at least partially transverse to the feed direction.

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30. (Previously Presented) The method of claim 29, wherein at least one of the nonlinear key element shapes is oriented substantially parallel to the feed direction.